APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,458	02/11/2002	Chang-Hoi Koo	678-810 (P10178)	4395

28249 7590 04/19/2005		**EXAMINER**
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ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 04/19/2005

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/073,458	KOO ET AL.
	Examiner	**Art Unit**	
	Isaac R Clark	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). .
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _11 February 2002_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-17_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-17_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _02/11/2002_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☒ All b)☐ Some * c)☐ None of:

   1.☒ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)   4)☐ Interview Summary (PTO-413)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   Paper No(s)/Mail Date. _____ .
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)   5)☐ Notice of Informal Patent Application (PTO-152)
   Paper No(s)/Mail Date _____ .   6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-17 are presented for examination.

Priority

2.   The applicant claims foreign priority under 35 USC § 119(a)-(d) from an

Application No. 2001-6535 filed in Korea on 02/09/2001.

3.   The effective filing date for the subject matter in the pending claims in this

application is 02/11/2002.

Drawings

4.   The drawings are objected to because in Fig. 3, the base number of bits

described for channel 2 in blocks 330 and 350 is "384" which is inconsistent with the

specification which describes the bit count as "3840".   (See specification page 14, lines

8-20). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in

reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next

Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5.   Claim 17 is objected to because of the following informalities:

6.   As per claim 17, the subject of the phrase "wherein further comprises a data rate

control unit" is not given making the claim grammatically incorrect. It is recommended

that the phrase be replaced with "further comprising a data rate control unit".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

8.   Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

9.   As per claim 17, claim 17 contains the limitation "based on the data rate

information received from a mobile station which the mobile station may receive".

10.   The scope of this limitation is unclear because the claim is not definite as to

whether data rate information is or is not received and therefore the method of

determining the data rate cannot be definitely determined.

11.   For the purpose of examining claim 17, it is assumed that the mobile station

receives data rate information.

Claim Rejections - 35 USC § 102

12.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13.   Claims 1, 3, 4, 5, 7, 9, and 10 are rejected under 35 U.S.C. 102(e) as being

anticipated by Belaiche (US 6,501,748 B1).

14.   As per claim 1, Belaiche teaches a method of transmitting information having at

least first data and second data in a mobile communication system (col. 1, lines 9-25,

and lines 64-67; data with disparate QOS), comprising the steps of: separating the

information into the first data and the second data in the form of a first data stream with

a first predetermined length and a second data stream with a second predetermined

length, respectively (col. 2, lines 40-45); generating first and second code symbol

sequences by encoding the first and second data streams at a predetermined code rate

(col. 3, lines 30-40); repeating one of the first and second code symbol sequences with

a higher priority level and puncturing the other code symbol sequence with a lower

priority level (col. 4, lines 55-60), the number of repeated code symbols being equal to

the number of punctured code symbols (col. 3, lines 49-53); and serially concatenating

the repeated code symbol sequence and the punctured code symbol sequence (col. 5,

lines 49-52).

15.   As per claim 3, Belaiche teaches the method of claim 1, wherein if the

information is inter-media data, the data streams are separated by priority level when

separating the information (col. 2, lines 47-49).

16.   As per claim 4, Belaiche teaches the method of claim 1, wherein the code symbol

sequences are generated in data blocks of lengths determined according to a

characteristic of each code symbol sequence and an available data rate on a radio

channel (col. 2, lines 13-15; col. 3, lines 25-40).

17.   As per claim 5, Belaiche teaches the method of claim 4, wherein if the data

blocks are less than a data block size available at the data rate, redundancy is added to

the data blocks (col. 5, Table 1, puncturing or repeating done to obtain the required

block size).

18.   As per claim 7, Belaiche teaches a method of simultaneously transmitting data

having the same or different priority levels to a mobile station in a mobile

communication system, comprising the steps of: classifying transmission data streams

by priority level (col. 2, lines 41-49) and separating each transmission data stream into

data streams of predetermined lengths according to characteristics of the data streams;

segmenting the separated data streams according to a data rate (col. 2, lines 40-45);

encoding the segmented data at a predetermined code rate (col. 3, lines 30-40),

repeating code symbol sequences with higher priority levels, and puncturing code

symbol sequences with lower priority levels (col. 4, lines 55-60), the number of repeated

code symbols being equal to the number of punctured code symbols (col. 3, lines 49-

53); and serially concatenating the repeated and punctured code symbol sequences

(col. 5, lines 49-52).

19.   As per claim 9, Belaiche discloses the method of claim 7, wherein the code

symbol sequences are distinguishably generated in data blocks of the size determined

according to a characteristic of each stream and an available data rate transmittable on

a radio channel (col. 2, lines 13-15; col. 3, lines 25-40).

20.   As per claim 10, Belaiche discloses the method of claim 7, wherein if the data

blocks are shorter than lengths provided by the data rate, redundancy is added to the

data blocks (col. 5, Table 1, puncturing or repeating done to obtain the required block

size).

Claim Rejections - 35 USC § 103

21.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

22.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

23.   Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Belaiche (US 6,501,748 B1) as applied to claims 1 and 7 above, in view of Andersen et

al. (US 5,674,003, "Andersen").

24.   As per claims 2 and 8, Belaiche does not teach wherein the separating step

further comprises the steps of: determining whether the information is intra-media data;

and separating the information into at least two data streams by priority level if the

information is intra-media data.

25.   Andersen teaches designating data packets of intra-media data to indicate the

required QOS of diverse data including a priority level (col. 9, lines 5-45; col. 15, lines

54-65; different priority streams assigned different sockets).

26.   It would have been obvious to one of ordinary skill in this art at the time the

invention was made to combine the teaching of Andersen and Belaiche to detect intra-

media data and to separate the data by priority because they both deal with providing

different quality of service levels to transmitted data. Furthermore, the teaching of

Andersen to separate intra-media data by priority allows preserving bandwidth in limited

bandwidth situations for the highest priority data thus providing an efficient allocation of

resources (See Andersen col. 3, lines 26-35).

27.   Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Belaiche (US 6,501,748 B1) in view of Davis et al. (US 6,781,971 B1, "Davis").

28. As per claim 12, Belaiche teaches an apparatus for simultaneously transmitting

data with the same or different priority levels in a mobile communication system,

comprising: separating data into streams based on priority (col. 2, lines 41-49) and

separating each transmission data stream into data streams of predetermined lengths

according to characteristics and a data rate of the data streams (col. 2, lines 40-45); a

multiplexer (MUX) for segmenting the separated data streams according to the data

rate; a plurality of multiple quality control (MQC) channels (col. 2, lines 20-25) for

encoding the segmented data at a predetermined code rate (col. 3, lines 30-40),

repeating code symbol sequences with higher priority levels, and puncturing code

symbol sequences with lower priority levels (col. 4, lines 55-60), the number of repeated

code symbols being equal to the number of punctured code symbols (col. 3, lines 49-

53); and a serial concatenator for serially concatenating the repeated and punctured

code symbol sequences (col. 5, lines 49-52).

29. Belaiche does not explicitly teach a radio link protocol portion (RLP) for

classifying streams by priority.

30. Davis teaches a radio link protocol portion for classifying data into streams by

priority (col. 11, line 35 – col. 12, line 5).

31. It would have been obvious to one of ordinary skill in this art at the time the

invention was made to combine the teaching of Davis and Belaiche because they both

deal with prioritizing diverse data streams communicated over a mobile network.

Furthermore, the teaching of Davis to modify the system of Belaiche to classify the data

in an RLP would reduce the degradation of traffic that cannot tolerate delay by

designating such traffic as high priority in order to provide additional transmission

resources for such data (See Davis, col. 4, line 60 – col. 5, line 14).

32.   As per claim 13, Belaiche teaches the apparatus of claim 12, wherein each of the

MQC channels comprises: a channel encoder 110 (Fig. 1) for encoding the segmented

data at the predetermined code rate; and a quality matcher 112 (Fig. 2) for repeating the

code symbol sequences with the higher priority levels and puncturing the code symbol

sequences with the lower priority levels (col. 4, lines 55-60).

33.   As per claim 14, Belaiche teaches the apparatus of claim 13, wherein the code

symbol sequences are generated in data blocks of lengths determined according to a

characteristic of each code symbol sequence and an available data rate on a radio

channel (col. 2, lines 13-15; col. 3, lines 25-40).

34.   As per claim 15, Belaiche teaches the apparatus of claim 14, further comprising a

redundancy selector in each MQC channel, for adding redundancy to the data blocks if

the data blocks are shorter than lengths provided by the data rate (col. 5, Table 1,

puncturing or repeating done to obtain the required block size).

35.   Claim 16 is are rejected under 35 U.S.C. 103(a) as being unpatentable over

Belaiche and Davis as applied to claim 13, further in view of Berrou, C. et al., Near

Shannon limit error-correcting coding and decoding: Turbo codes IEEE International

Conference on Communications, Volume 2, 23-26 May 1993 Page(s): 1064 - 1070

vol.2. (hereinafter Berrou).

36.   As per claim 16, Belaiche teaches channel encoders (col. 3, lines 25-26) but

does not explicitly teach that the channel encoders are turbo encoders.

37.   Berrou teaches the use of turbo encoders (page 1069, last paragraph).

38.   It would have been obvious to one of ordinary skill in this art at the time the invention was made to combine the teaching of Belaiche and Berrou to encode the data stream in a channel using a turbo encoder because they both deal with adding redundancy to a data stream to achieve a targeted bit error rate (BER). Furthermore, the teaching of Berrou to use turbo encoding would optimize performance by with respect to correcting data in the face of noise interference at nearly theoretical limits thus optimizing the efficiency of transmission in the face of noise and competing encoded traffic (See Berrou page 1064, Abstract).

39.   Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belaiche (US 6,501,748 B1) in view of Kinjo et al. (US 2003/0133497 A1, "Kinjo").

40.   Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

41.   As per claims 6 and 11, Belaiche as applied to claims 5 and 10 above fails to explicitly teach wherein the redundancy-added data blocks are repeated and punctured including the redundancy.

42.   Kinjo teaches a second rate matching step in which the redundancy-added blocks are repeated and punctured including the redundancy (Fig. 4, block 90; Paragraph 0122).

43.   It would have been obvious to one of ordinary skill in this art at the time the invention was made to combine the teaching of Belaiche and Kinjo because they both

deal with transmission of data in a mobile communication system. Furthermore, the

teaching of Kinjo to include a second rate matching apparatus or step in which the

redundancy added blocks are repeated or punctured including the redundancy allows

selecting a first rate wherein the number of bits is matched to the size of the buffer in

the mobile unit while the second rate matching unit adjusts the redundancy to the size

of the transport channel (See Kinjo, Paragraph 0007). Providing two rate matching

steps allows matching redundancy based on both the buffer in the control unit and the

data rate the data recovery needs at the receiver allowing optimizing of transmission

and reception error rates (Kinjo, Paragraphs 0122 and 0123).

44.   Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Belaiche and Davis as applied to claim 12 above and further in view of Kinjo et al. (US

2003/0133497 A1, "Kinjo").

45.   Applicant cannot rely upon the foreign priority papers to overcome this rejection

because a translation of said papers has not been made of record in accordance with

37 CFR 1.55. See MPEP § 201.15.

46.   As per claim 17 (as construed), Belaiche does not explicitly teach a data rate

control unit for determining the data rate based on the data rate information received

from a mobile station and then providing the determined data rate with the radio link

protocol.

47.   Kinjo teaches a data rate control unit for determining the data rate based on the

data rate information received from a mobile station and then providing the determined

data rate with the radio link protocol (Paragraph 0103)

48.   It would have been obvious to one of ordinary skill in this art at the time the
invention was made to combine the teaching of Belaiche and Kinjo because they both
deal with transmission of data in a mobile communication system. Furthermore, the
teaching of Kinjo to provide a data rate control unit for determining data rate information
and providing the determined data rate selects the frame size the first stage rate
matching (Paragraph 0101). Kinjo further teaches that to include a second rate
matching apparatus or step in which the redundancy added blocks are repeated or
punctured including the redundancy allows selecting a first rate wherein the number of
bits is matched to the size of the buffer in the mobile unit while the second rate
matching unit adjusts the redundancy to the size of the transport channel (See Kinjo,
Paragraph 0007).   Providing two rate matching steps allows matching redundancy
based on both the buffer in the control unit and the data rate the data recovery needs at
the receiver allowing optimizing of transmission and reception error rates (Kinjo,
Paragraphs 0122 and 0123).

Conclusion

49.   The prior art made of record and not relied upon is considered pertinent to
applicant's disclosure. The following patents and publications are cited to further show
the state of the art with respect to "Apparatus and method for providing data service in a
wireless system".

    a.   US 6,788,657 B1   Freiberg et al.   Transmitting services requiring
diverse QOS using CDMA with turbo coding

    b.   US 5,793,744   Kanerva et al.   RLP

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isaac R Clark whose telephone number is (571)272-3961. The examiner can normally be reached on Monday-Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on (571)272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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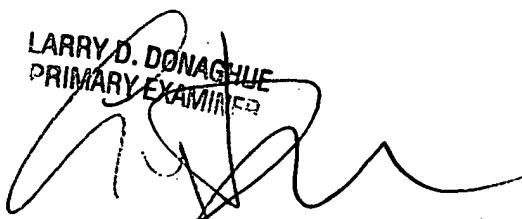
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